BULLETIN

of the

ONTARIO COLLEGE OF PHARMACY

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EXTENSION COURSES

Ottawa, Toronto, and Windsor have been selected, tentatively, as centres for the Extension Lectures to be given by the Faculty during April and May.

Published by the Committee on Extension Services under the authority of the Council of the Ontario College of Pharmacy, this new venture represents the cooperative effort of the Council and Faculty. It is our dream that some day this Bulletin may grow to a full-sized Journal. May we suggest that you purchase a binder and file the Bulletin for future reference. We will appreciate comments and suggestions concerning content. Some readers may wish to submit short articles for the Bulletin.

The Editor.

The cover of this Bulletin was designed by Miss F.M. Ward, Secretary to the Registrar.

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BULLETIN OF THE ONTARIO COLLEGE OF PHARMACY

STATEMENT OF PURPOSE

1. To provide a means of communication with the pharmacists of Ontario.
2. To act as a continuing element to the extension lectures.
3. To maintain the continuing interest of the Members of the College in their College by reporting new courses, new developments, activities, and services.
4. To report, in understandable language, the merits of New Products mentioned in current scientific literature.
5. To report any changes or proposed changes in the laws pertaining to pharmacy.

DEAN'S OFFICE

R.O. Hurst, Dean of the Faculty, Professor of Pharmacy

This is the first of a series of Bulletins to you from the College. The plan is to issue it five times a year. I suggest that you and all of the help in your shop read it and mark anything that appears of special interest to you. I also suggest that you keep it in a file for easy reference.

What is the purpose of the Bulletin? It will bring you news of the College along with the Registrar's correspondence. There may be articles on some new form of medication, or in these times of expansion there may be explanatory articles in order that you may be fully aware of any proposed changes in the College curriculum.

Anyway we think the Bulletin is a good idea. It might be looked upon in the same way as a circular from the head office of a business to its shareholders.

THE REGISTRAR'S OFFICE

H.M. Corbett, Registrar-Treasurer

I appreciate this opportunity to greet you for the first time through the pages of our new Bulletin. It is to be my privilege, in coming issues, to give you news and information from the Registrar's Office.

Through this office flows the day to day story of Pharmacy across the Province. Our mail brings us news of the problems, the success, and the tragedies of our members in city and hamlet. From it we get to know fairly well what progress or recession pharmacy is making.

I am proud of the place that our members hold in the communities they serve. Many of our graduates have risen to prominence in the business world, and most of you would recognize them if I mentioned their names. We are happy in their success.

I am proud too of the graduates operating our community stores in city, small town, and rural hamlet. Their place in community and pharmaceutical service contributes much to our Country.

I hope to meet all of you through these pages in the days to come. We hope that we can help one another.

SORBITAN DERIVATIVES IN PHARMACY

Professor G.C. Walker

The pharmaceutical and cosmetic industries have seen an ever-increasing usage within the past few years of sorbitan derivatives, known commercially as Spans, Tweens, Arlacels, Atlas G compounds, etc. (1). They are marketed by the Atlas Powder Co., Wilmington, Delaware, and the Canadian branch at Brantford, Ontario.

The sorbitans are non-ionic surface-active agents and emulsifiers. The span compounds (Arlacels) are essentially partial esters of the common fatty acids such as lauric, palmitic, stearic and oleic with hexitol anhydrides derived from the sugar alcohol sorbitol. They are generally soluble in oil or organic solvents and insoluble but dispersible in water. The tweens are essentially polyoxyethylene derivatives of the spans and are soluble or dispersible in water but generally insoluble or somewhat dispersible in oil. The G series consists of various modified lanolin and beeswax derivatives. The compounds are relatively stable, non-irritating, neutral, non-toxic, and compatible with a wide variety of materials.

Solubilization

The Atlas Powder Company (2) has pointed out the value of their non-ionic emulsifiers in replacing partially or completely the alcohol used for dissolving the perfume oils in such cosmetic formulations as colognes, toilet waters and after-shave lotions. In general, three to five parts of tween 20, atlas G-2162 or atlas G-7596-P will solubilize one part of the oil in water producing a sparkling clear preparation. For example, the perfume compound is dissolved in the tween 20 and water is slowly added with moderate agitation. It should be noted that the oils are not in true solution but are really transparent emulsions.

The surface-active materials are also very useful in solubilizing essential oils, vitamin-bearing oils, and flavouring compounds. For example,

Peppermint Oil	15%
Tween 20	85%

These are simply mixed and the mixture diluted with water to any proportion without cloudiness. However, it is pointed out that the method of preparation is fairly specific to the type of oil.

Tween 20 will solubilize vitamin oil concentrates so that a combination of oil-soluble and water-soluble vitamins may be prepared in a single aqueous concentrate which can be diluted as required. Certain tween products have been found valuable in preparing clear dispersions of water-insoluble antibiotics and in particular Tyrothricin.

Prescription Difficulties

Stoklosa and Ohmart (3) have recently studied the resolution of a number of prescription incompatibilities using the tweens and spans and they suggest that certain sorbitans are useful as dispensing aids in extemporaneous compounding.

Menthol in lotions often presents an unsightly preparation if insufficient alcohol is present. A typical example cited by these authors is as follows:

Phenol	1.0
Menthol	0.5
Glycerin	15.0
Boric acid solution ad	120.0

Dissolve the Menthol in 1 cc. of alcohol, add 10 cc. Tween 20, and mix thoroughly. To this solution add the mixture of phenol, glycerin, and boric acid solution in divided portions, agitating after each addition. A clear "solution" is obtained.

The precipitation and ensuing agglutination of resin when a resinous tincture is added to water is familiar to all pharmacists. Tween 20 is a useful solubilizer.

Benzoin Tincture	4.0
Glycerin	30.0
Rose Water ad	120.0
Sig: Apply as directed.	

Mix the benzoin tincture and 10 cc. of Tween 20. To this solution add the glycerin and rose water in divided portions, shaking after each addition. There is no precipitation of resinous material. A clear product results.

The addition of 2% span 20 was found effective in preventing the separation of glycerin in an ichthammol ointment made with glycerin and soft paraffin.

Internal preparations often show a cloudiness or precipitate due to alteration of the solvent when diluting alcoholic liquids, e.g.

Nux Vomica Tincture	15.0
Compound Gentian Tincture	30.0
Distilled Water ad	120.0
Sig: 4 cc. ex. aq. a. c.	

Mix 5 cc. of Tween 20 with the tinctures. To this solution add water in divided portions, shaking after each addition. The resultant product is a clear "solution".

A topical prescription containing mineral oil, glycerin, and camphor water was readily prepared in dispersible form by adding 2% Span 20. If it is desired to include a water-soluble Neo-silvol in a mineral oil base, Tween 20 is used and a fine dispersion secured.

Because of the general non-toxicity of these Atlas products, they should find a wide application in the field of pharmacy and medicine. Much work has been done already in the industry but the results are not readily available.

References

1. Surface Active Agents, Atlas Powder Company, Wilmington 99, Del. (1950)
2. Drug and Cosmetic Emulsions, Atlas Powder Company, Wilmington 99, Del. (1950)
3. Stoklosa, M.J. and Ohmart, L.M., J.Am.Pharm. Assoc. Pract. Ed. 12,23 (1951)

THE HISTORY OF PHARMACY IN ONTARIO

Professor G.R. Paterson

In the spring semester of 1952, The Ontario College of Pharmacy will institute, as a required course in the senior year, a series of thirty lectures in the History of Pharmacy.

Using "History of Pharmacy" by Kremers and Urdang as a text, the lecturer will attempt to interpret the role of pharmacy and pharmacists on the moving stage that is world history, and the effect of that general history on our profession.

As Dr. Urdang put it in his opening lecture to the first course in pharmaceutical history for the senior class of the School of Pharmacy at the University of Wisconsin on September 29, 1947:

"There was a time when history was regarded as a narrative or a chronological account of data and dates centering around the fate of dynasties or individual kings and heroes and the endless chain of wars. Gradually, the point of view has changed. The general interest has shifted from the royalty to the plebs, to the common people and their fate, and from the mere recording of facts to attempts at their adequate interpretation. We want to know not only the what but, as far as possible, the why also. The fact-finding has to be followed by an attempt at sense-finding".

"As for pharmacy, we do not think it sufficient any more to know a number of details about the profession, its tasks, its work, and fate throughout the ages. We have become aware of the fact that nothing is isolated in this world of ours, that whatever has happened, and is going to happen, in or to pharmacy reflects the general situation of the time concerned, and we wish to know about this interrelationship in order to understand both the development of the general situation and that of pharmacy."

The history of the History of Pharmacy is not as well-advanced in Canada as it is in Europe and in the United States. Excellent written accounts of such history abound in those countries. Few such stories of our profession in our country exist. Those of us who are interested in the history of Pharmacy in Ontario in particular and in Canada in general, are most anxious to serve as a centre for the collection of historical fragments and documents which after interpretation, will enable us to understand more readily our profession and its development to its present position in society.

With the idea in mind that there is so much work to do in collecting data, in interpreting it, and in recording it, we ask those of you who may have in your possession old records and documents (pictures, photographs, handbills, etc.) of pharmaceutical historical interest, to make available to your college the original material or certified photostatic copies. In this way, and in this way alone, will we in the future have a complete picture of the development of Pharmacy in Upper Canada, and subsequently in Ontario.

Some day, we hope to write a History of Pharmacy in Ontario and further, to integrate it with similar histories from the other nine provinces into a truly Canadian History of Pharmacy. Will you help us in this aim with your interest and contributions of historical material?

PLANT AND ANIMAL PRODUCTS IN PHARMACY TO-DAY

Professor Ross M. Baxter

The use of crude drugs in the form of various extracts, in pharmacy and medicine was for many decades the accepted method for utilizing the beneficial action of the active constituents. However, as these active principles were isolated and their chemistry became better understood it was found preferable, wherever possible, to use the pure constituents as such or modified synthetic derivatives.

To-day we observe that many crude drugs which have been official are being replaced by more highly purified products or the active constituents themselves. Thus the physician is able to prescribe and obtain a definite dosage due to a greater stability and absence of variable quantities of inert impurities.

It might appear then that a knowledge of natural plant and animal products might be somewhat superfluous to the present day pharmacist. However, let us consider some of the recent developments in this field.

After a survey of the therapeutically important agents at the physician's disposal we find that many are still obtained from plants and microorganisms. The antibiotics offer a very excellent example of this as well as the digitalis glycosides, ergot alkaloids, such animal products as thyroid, the pituitary hormones and others.

Plants and animals also synthesize a number of compounds that are useful as starting materials for the partial synthesis of a number of hormones. The Mexican Yam (Dioscorea mexicana) has yielded a sapogenin which can be used to produce sex hormones and more recently Cortisone. We are to-day, reliant on the pituitary of the pig and sheep for our supply of ACTH.

Due to the complex chemical nature of many of these compounds it appears that we will be reliant, for years to come, on a natural source for our supply of the therapeutically active agents or the starting materials mentioned above. Thus it would appear if the pharmacist is to have a broad and useful knowledge of the products which he will dispense, that a study of plant and animal drugs should be an integral part of his training.

ORGANIC CHEMISTRY AND THE PHARMACIST

Professor D.H. Murray

Beginning in the 1930's, a large number of synthetic substances have been introduced into medicine as therapeutic agents. Various series of compounds, often structurally related, are now employed, for example, the sympathomimetic agents such as benzedrine and ephedrine, and the various antihistaminic compounds. In these materials, it is often found that a seemingly insignificant change in chemical structure gives rise to marked change in activity. The pharmacist in modern retail operation is closely concerned with these newer agents in his dispensing practice. Hence it is hoped that discussion of some fundamental concepts of organic chemical strucutre as related to physiological activity, in later issues of this bulletin, will be of value.

CHLOROPHYLL OINTMENT AND SUPPOSITORIES

Professor F. N. Hughes, Assistant Dean

An excellent review of the medicinal and pharmaceutical uses of chlorophyll appears in The Bulletin of the American Society of Hospital Pharmacists, p. 292-7 (Sept. -Oct. 1951) by Glen J. Sperandis. The chemistry, pharmacology, and therapeutic applications are discussed to indicate the types of compounds employed and the uses, largely in the treatment of ulcers and wounds, and as deodorants. Natural chlorophyll is oil-soluble, but water-soluble derivatives, chlorophyllins, are most frequently employed. These are expensive but relatively small quantities are used, usually being supplied as various solutions: sodium magnesium chlorophyllin (25% chlorophyll solution), sodium copper chlorophyllin (8%), and potassium magnesium Chlorophyllin (4%).

A suggested chlorophyll ointment is:

Stearic Acid	15 Gm.
Liquid Petrolatum	5 ml.
Carbowax 4000	10 Gm.
Triethanolamine	1 Gm.
Sodium Benzoate	1 Gm.
Chlorophyll 25% (Water-soluble)	4 Gm.
Distilled Water, to make	100 ml.

Heat the first two ingredients on a water bath to about 75 degrees C. Dissolve the Carbowax 4000, Triethanolamine and Sodium Benzoate in water at the same temperature. Mix the two solutions with stirring until a cream is formed. Add chlorophyll and "spatulate" to make uniform.

A formula for Chlorophyll Suppositories to minimize foul odours in certain vaginal and rectal conditions was developed at the University of Michigan Hospital:

Chlorophyll M.M.R. Type G.F. (oil-soluble)	6.0 Gm.
Cacao Butter, to make	60.0 Gm.

Melt the Cacao Butter at a low temperature, add the chlorophyll and stir until the mixture begins to thicken. Pour into chilled moulds, and leave in a cool place until the suppositories harden.

THE LIBRARY

Miss H.M.Walton, Librarian

The library has grown so much in recent years that provision was made for another library in the new addition. This new room, housing the journals and periodicals, contains four tables accomodating 32 students. It is a great help in providing study space for this year's large enrollment.

Fifteen new books have been added to the library since September. Special interest to rural pharmacists with active veterinary departments are: (1) "Veterinary Guide for Farmers" by G.W. Stamm, published by the Windsor Press, written to serve as a handbook for the livestock owner and as a textbook in schools of agriculture; (2) "Keeping Livestock Healthy" published by the United States Department of Agriculture is divided into sections on fundamentals of disease, important general diseases common to several species and finally common diseases and parasites of specific species, such as horses, cattle, swine, goats, poultry, dogs and cats. Anyone desiring to borrow these books may do so for a period of two weeks. Only cost is return postage.(3 cent a day fine for each day over the two week period.)